

# Project -> Full Stack Java Developer Capstone Project

## **1. ICIN Bank**

This Project is Developed by Anushka Sharma. This project is hosted on the git repository : <https://github.com/AnushkaSharma9/Capstone-Project-ICIN-Online-Banking.git>

### **1.1 PROJECT DESCRIPTION**

This application is designed and developed as an Online Banking Web Application where the back-end is developed using Sprint Boot Framework and front-end is developed by using Angular. This system allows ICIN Bank admin to provide net banking facilities for end users, such as Registration, Login, Account transactions, Transfers, Saving details, Requesting cheque books, etc. The admin user is able retrieve transactions as well as block user. The user can register or login into the application , they can deposit or withdraw money from their account, view transactions, and balance in the primary and savings account. Transfer funds between different and add recipients, request cheque books for different accounts.

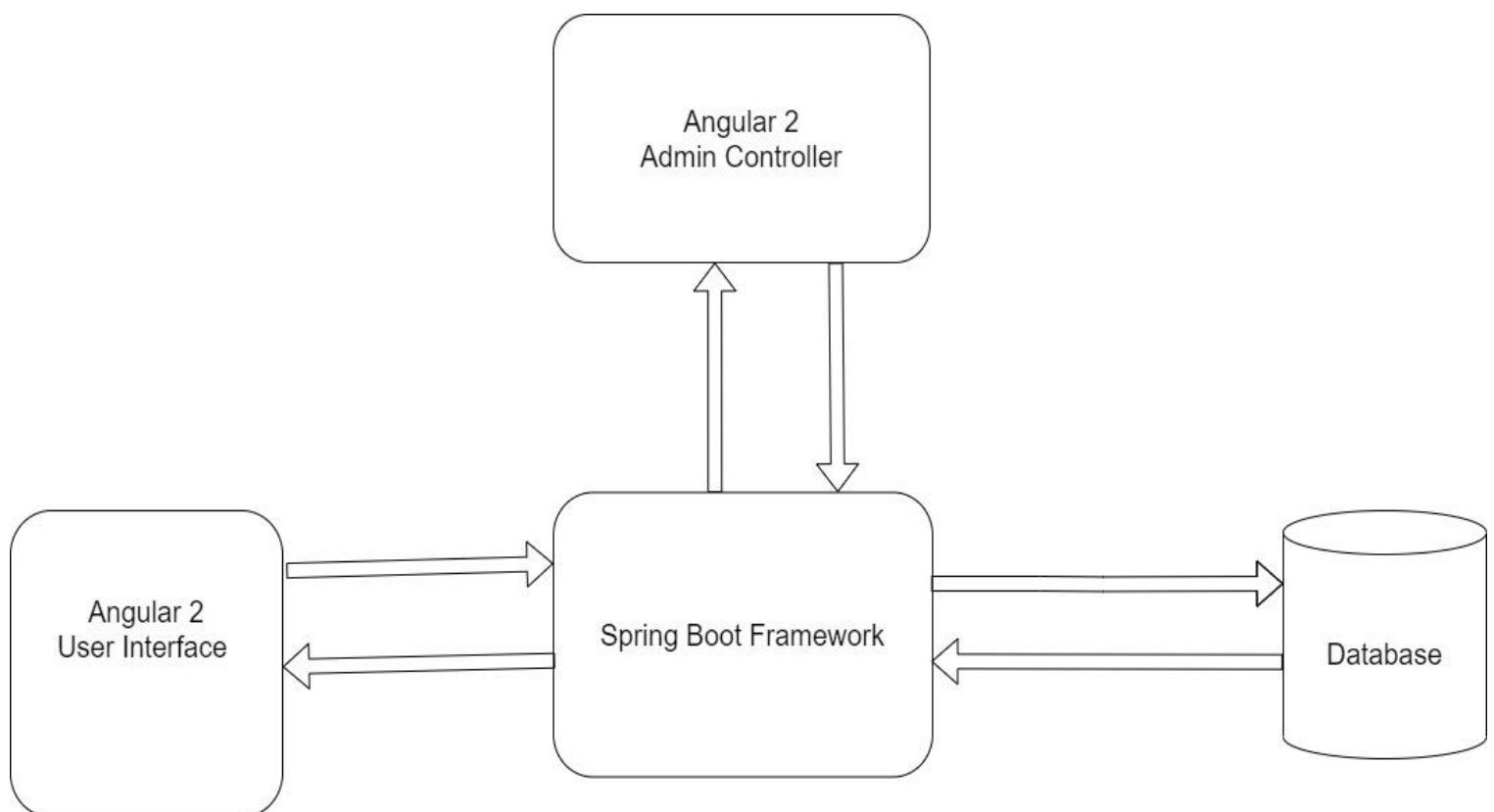
### **1.1.2 TECH STACK**

- MySQL
- Eclipse
- Spring boot Framework
- Core Java Concepts - Object Oriented Programming (OOPS) Concepts such as Classes and Objects.
- JDBC template
- HTML - Hyper Text Markup Language
- CSS - Cascading Style Sheets

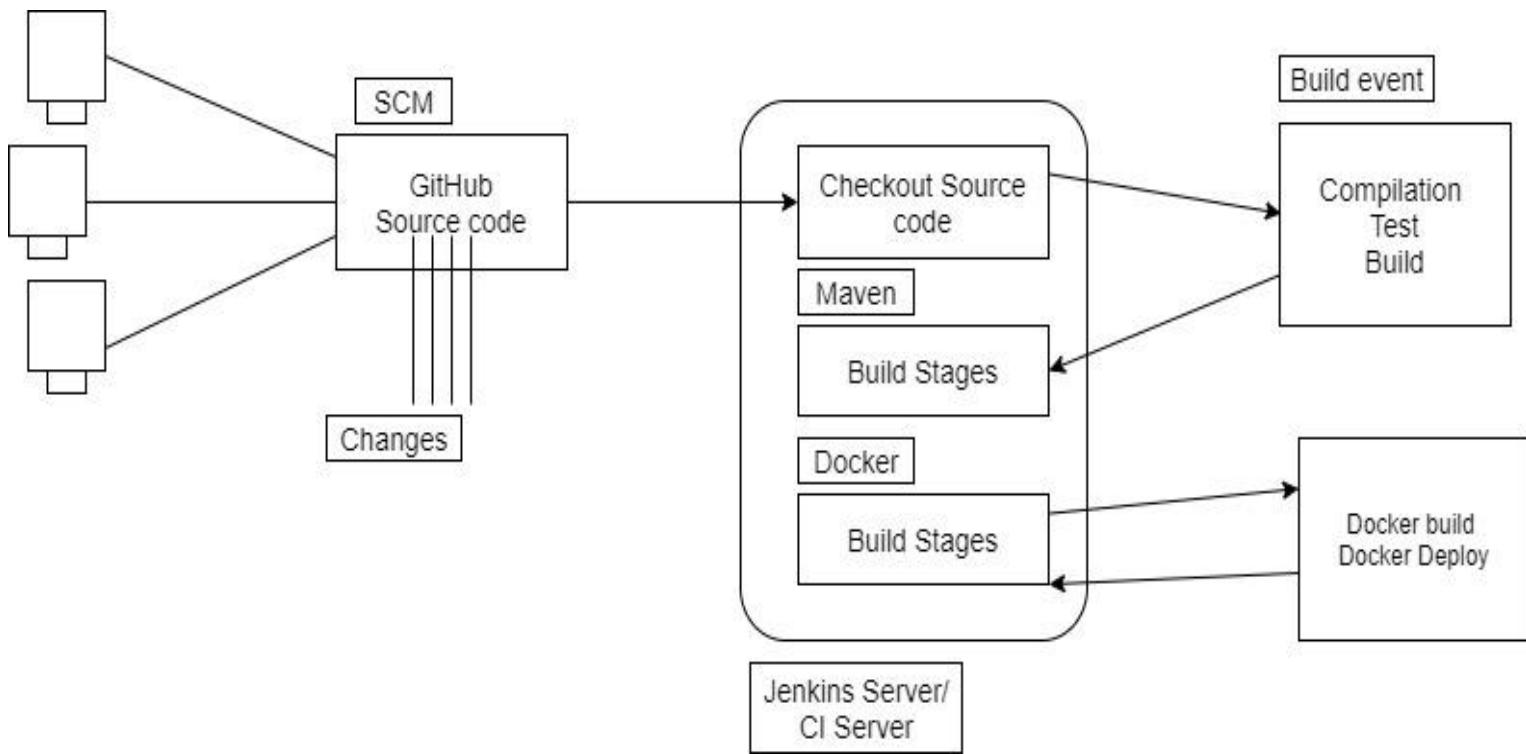
- Angular 2
- Jenkins
- Docker
- AWS EC2 instance

## **2. FLOW CHART OF THE APPLICATION**

The below given picture depicts the flow of the Project :



**FIG 1 - FLOW CHART OF THE PROJECT**



**FIG 1 - FLOW CHART OF THE DEPLOYMENT**

### **3. PROJECT USER STORIES : (Agile and Scrum)**

- As a user I want an ICIN bank Online Banking web Application for end users.
- As a user I want an ICIN bank Online Banking web Application in which I can retrieve transaction for end users.
- As a user I want an ICIN bank Online Banking web Application in which I can block an end user.
- As a user I want an ICIN bank Online Banking web Application in which end user can register into the application.
- As a user I want an ICIN bank Online Banking web Application in which end user can login into the application.

- As a user I want an ICIN bank Online Banking web Application in which end user can deposit and withdraw from the account in the application.
- As a user I want an ICIN bank Online Banking web Application in which end user can view transaction and balance in the primary and savings account in the application.
- As a user I want an ICIN bank Online Banking web Application in which end user can transfer funds between different accounts and add recipients in the application.
- As a user I want an ICIN bank Online Banking web Application in which end user can request cheque books for different accounts in the application.
- As a developer I want to develop an ICIN bank Online Banking web Application for end users as well as Admin user.
- As a developer I want to develop an ICIN bank Online Banking web Application in which Admin user can retrieve transaction for end users.
- As a developer I want to develop an ICIN bank Online Banking web Application in which Admin user can block an end users.
- As a developer I want to develop an ICIN bank Online Banking web Application in which end user can register into the application.
- As a developer I want to develop an ICIN bank Online Banking web Application in which end user can login into the application.
- As a developer I want to develop an ICIN bank Online Banking web Application in which end user can deposit and withdraw from the account in the application.
- As a developer I want to develop an ICIN bank Online Banking web Application in which end user can view transaction and balance in the primary and savings account in the application.
- As a developer I want to develop an ICIN bank Online Banking web Application in which end user can transfer funds between different accounts and add recipients in the application.

- As a developer I want to develop an ICIN bank Online Banking web Application in which end user can request cheque books for different accounts in the application.

## **4. SPRINTS**

### **Sprint 1**

- Understanding the problem statement of the project .
- Creating the flow chart of the application.

### **Sprint 2**

- Creating Spring Boot Project.
- Adding necessary dependencies.
- Creating Controller, Model, DAO, Exception, Service, and ServiceImpl packages needed.
- Writing Hibernate to connect with the database MySQL.

Testing at each step for different user inputs.

### **Sprint 3**

- Downloading Angular2 for making the front end of the application.
- Adding various folders to achieve the front-end for making the application user-friendly
- In these folders adding .html, .css, .ts , as well as .spec.ts.
- Connecting to the backend.
- Running the application on a port.

### **Sprint 4**

- Creating AWS EC2 instance.
- Downloading MobaXterm.
- Downloading Jenkins and Docker in MobaXterm.
- Deploying the application on Jenkins and docker server.
- Creating the Specification document for deploying the project.
- Testing at each step for different user inputs.

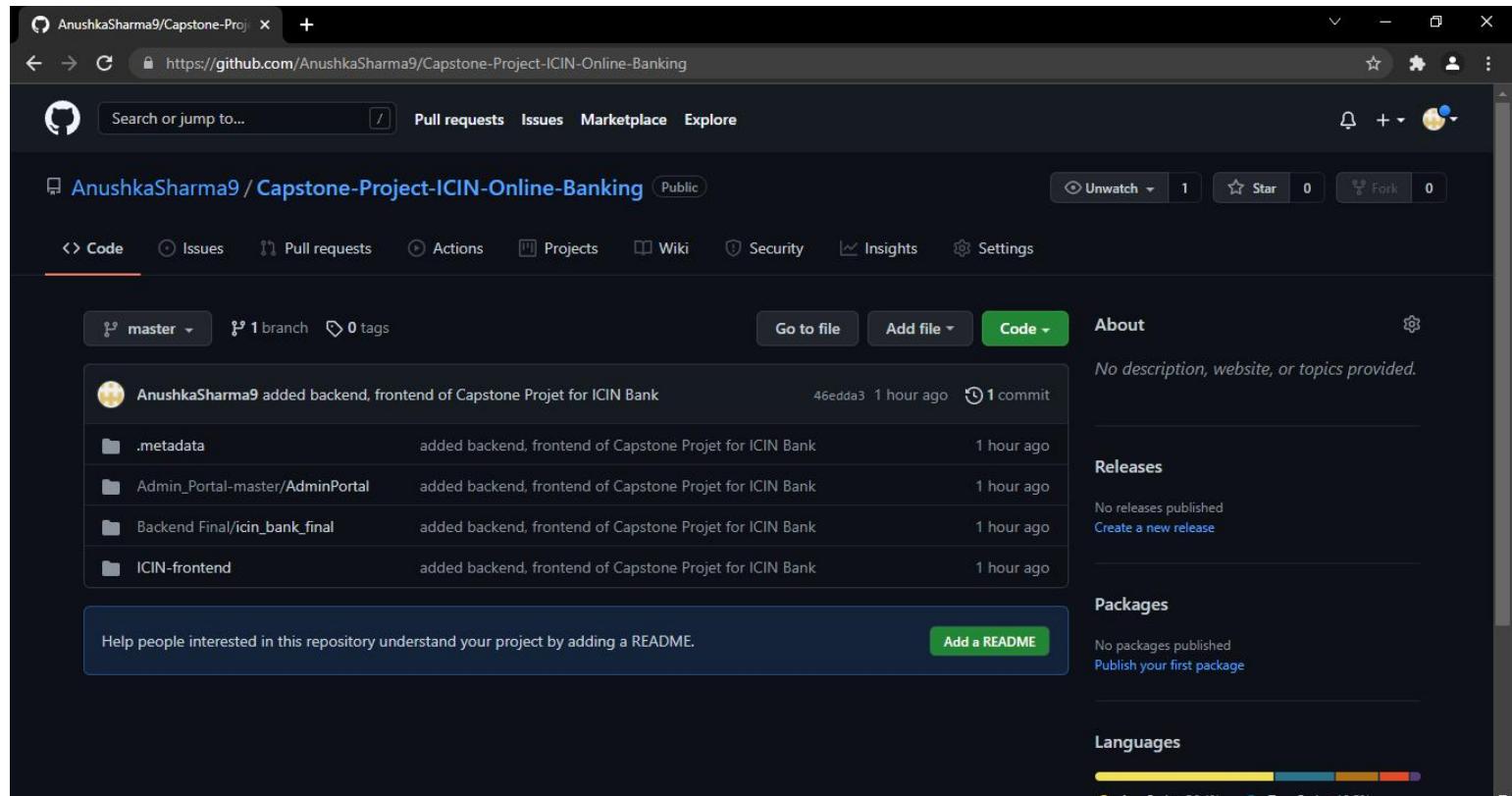
- Pushing the code to the GitHub

## 5. PROJECT GIT REPOSITORIES

1. Link to the GitHub Repository : <https://github.com/AnushkaSharma9/Capstone-Project-ICIN-Online-Banking.git>

2. clone git : <https://github.com/AnushkaSharma9/Capstone-Project-ICIN-Online-Banking.git>

3. Screen Shot of GitHub :



4. How to run Project :

4.1. clone project

clone git : git clone <https://github.com/AnushkaSharma9/Capstone-Project-ICIN-Online-Banking.git>

4.2. open Capstone-Project-ICIN-Online-Banking->Backend Final->icin\_bank\_final->src->main->java->com->icin

right click on icin\_bank\_final -> Run as -> Spring Boot App

✧ Name of Project->>**icin\_bank\_final**

4.3 ICIN-frontend -

- Open VS Code in this folder
- Run command in VS Code in terminal as ‘ng serve’, to start the ICIN interface for user on port http://localhost/4200.

4.4 Admin\_Portal-master/AdminPortal -

- Open VS Code in this folder
- Run command in VS Code in terminal as ‘ng serve --port 4201’, to start the Admin Controller for user on port http://localhost/4201.

4.5 Create EC2 Instance on AWS as follows:

The screenshot shows the AWS EC2 Management Console. The URL in the address bar is https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:. The left sidebar has a 'New EC2 Experience' toggle, followed by links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (selected), Instances Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances (New), Dedicated Hosts, Scheduled Instances, Capacity Reservations, and Images. The main content area is titled 'Instances Info' and shows a table with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, and Availability Zone. A message at the bottom of the table says 'You do not have any instances in this region'. A modal window titled 'Select an instance' is open at the bottom of the screen.

Launch instance wizard | EC2 Manager

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

Services ▾ Search for services, features, blogs, docs, and more [Alt+S]

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review Cancel and Exit

### Step 1: Choose an Amazon Machine Image (AMI)

**Launch a database using RDS**

|  |  |        |
|--|--|--------|
|  SUSE Linux                                     | SUSE Linux Enterprise Server 15 SP2 (HVM), SSD Volume Type - ami-0fde50fcbcd46f2f7 (64-bit x86) / ami-05f2f5f76d89313bb (64-bit Arm) | Select |
|  Ubuntu Server 20.04 LTS (HVM), SSD Volume Type | - ami-083654bd07b5da81d (64-bit x86) / ami-04fe9398b2a27a600 (64-bit Arm)  | Select |
|  Ubuntu Server 18.04 LTS (HVM), SSD Volume Type | - ami-0279c3b3186e54acd (64-bit x86) / ami-0528007a60177dd84 (64-bit Arm)  | Select |

**Free tier eligible**

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

**Free tier eligible**

64-bit (x86) 64-bit (Arm)

64-bit (x86) 64-bit (Arm)

64-bit (x86) 64-bit (Arm)

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Launch instance wizard | EC2 Manager

New Tab https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance families ▾ Current generation ▾ Show/Hide Columns

Currently selected: t2.medium (- ECUs, 2 vCPUs, 2.3 GHz, ~4 GiB memory, EBS only)

|                                     | Family | Type   | vCPUs | Memory (GiB) | Instance Storage (GB) | EBS-Optimized Available | Network Performance | IPv6 Support |
|-------------------------------------|--------|--|-------|--------------|-----------------------|-------------------------|---------------------|--------------|
| <input checked="" type="checkbox"/> | t2     | t2.nano  | 1     | 0.5          | EBS only              | -                       | Low to Moderate     | Yes          |
| <input checked="" type="checkbox"/> | t2     | t2.micro<br><span style="background-color: #00AEEF; color: white; padding: 2px;">Free tier eligible</span> | 1     | 1            | EBS only              | -                       | Low to Moderate     | Yes          |
| <input checked="" type="checkbox"/> | t2     | t2.small   | 1     | 2            | EBS only              | -                       | Low to Moderate     | Yes          |
| <input checked="" type="checkbox"/> | t2     | t2.medium  | 2     | 4            | EBS only              | -                       | Low to Moderate     | Yes          |
| <input checked="" type="checkbox"/> | t2     | t2.large   | 2     | 8            | EBS only              | -                       | Low to Moderate     | Yes          |

Cancel Previous Review and Launch Next: Configure Instance Details

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Launch instance wizard | EC2 M... New Tab https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

**Number of instances** 1 Launch into Auto Scaling Group

**Purchasing option** Request Spot instances

**Network** vpc-0b339b7f7b4b6d3d0 (default) Create new VPC

**Subnet** No preference (default subnet in any Availability Zone) Create new subnet

**Auto-assign Public IP** Use subnet setting (Enable)

**Placement group** Add instance to placement group

**Capacity Reservation** Open

**Domain join directory** No directory Create new directory

**IAM role** None Create new IAM role

**Cancel** **Previous** **Review and Launch** **Next: Add Storage**

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 3: Configure Instance Details

**Shutdown behavior** Stop

**Stop - Hibernate behavior** Enable hibernation as an additional stop behavior

**Enable termination protection** Protect against accidental termination

**Monitoring** Enable CloudWatch detailed monitoring Additional charges apply.

**Tenancy** Shared - Run a shared hardware instance Additional charges will apply for dedicated tenancy.

**Elastic Inference** Add an Elastic Inference accelerator Additional charges apply.

**Credit specification** Unlimited Additional charges may apply

**File systems** Add file system Create new file system

**Advanced Details**

**Cancel** **Previous** **Review and Launch** **Next: Add Storage**

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Launch instance wizard | EC2 Manager New Tab https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard: Services Search for services, features, blogs, docs, and more [Alt+S] anushka921 N. Virginia Support

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

| Volume Type | Device    | Snapshot               | Size (GiB) | Volume Type               | IOPS       | Throughput (MB/s) | Delete on Termination               | Encryption    |
|-------------|-----------|------------------------|------------|---------------------------|------------|-------------------|-------------------------------------|---------------|
| Root        | /dev/sda1 | snap-0c97f1c43c6bb2043 | 16         | General Purpose SSD (gp2) | 100 / 3000 | N/A               | <input checked="" type="checkbox"/> | Not Encrypted |

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

▼ Shared file systems

Cancel Previous Review and Launch Next: Add Tags

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Launch instance wizard | EC2 Manager New Tab https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard: Services Search for services, features, blogs, docs, and more [Alt+S] anushka921 N. Virginia Support

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both. Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

| Key  | (128 characters maximum) | Value     | (256 characters maximum) | Instances                           | Volumes                             | Network Interfaces                  |
|------|--------------------------|-----------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Name |                          | webserver |                          | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Add another tag (Up to 50 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

**Step 6: Configure Security Group**

allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group:  Create a new security group  
 Select an existing security group

Security group name:

Description:

| Type         | Protocol | Port Range | Source   | Description     |
|--------------|----------|------------|----------|-----------------|
| SSH          | TCP      | 22         | My IP    | 49.36.220.14/32 |
| Custom TCP F | TCP      | 80         | Anywhere | Open for all    |
| Custom TCP F | TCP      | 8080       | Anywhere | Open for all    |
| Custom TCP F | TCP      | 8090       | Anywhere | Open for all    |
| Custom TCP F | TCP      | 4200       | Anywhere | Open for all    |
| Custom TCP F | TCP      | 4201       | Anywhere | Open for all    |

[Cancel](#) [Previous](#) [Review and Launch](#)

**Step 7: Review Instance Launch**

|                 |     |      |                 |              |
|-----------------|-----|------|-----------------|--------------|
| SSH             | TCP | 22   | 49.36.220.14/32 | Anushka IP   |
| HTTP            | TCP | 80   | 0.0.0.0/0       | Open for all |
| HTTP            | TCP | 80   | ::/0            | Open for all |
| Custom TCP Rule | TCP | 8080 | 0.0.0.0/0       | Open for all |
| Custom TCP Rule | TCP | 8080 | ::/0            | Open for all |
| Custom TCP Rule | TCP | 8090 | 0.0.0.0/0       | Open for all |
| Custom TCP Rule | TCP | 8090 | ::/0            | Open for all |
| Custom TCP Rule | TCP | 4200 | 0.0.0.0/0       | Open for all |
| Custom TCP Rule | TCP | 4200 | ::/0            | Open for all |
| Custom TCP Rule | TCP | 4201 | 0.0.0.0/0       | Open for all |
| Custom TCP Rule | TCP | 4201 | ::/0            | Open for all |

▶ Instance Details [Edit instance details](#)

▶ Storage [Edit storage](#)

[Cancel](#) [Previous](#) [Launch](#)

The screenshot shows the AWS Launch Instance Wizard at Step 7: Review Instance Launch. A modal window titled "Select an existing key pair or create a new key pair" is open. Inside, it explains what a key pair is and provides a note about adding the selected key pair to the instance's authorized keys. The modal contains fields for "Create a new key pair" (selected), "Key pair type" (RSA selected), and "Key pair name" (webserver-icin). A "Download Key Pair" button is present. A callout message informs the user that they must download the private key file (\*.pem) before continuing. At the bottom of the modal are "Cancel" and "Launch Instances" buttons.

Step 7: Review Instance Launch

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair

Key pair type

RSA  ED25519

Key pair name

webserver-icin

Download Key Pair

You have to download the **private key file** (\*.pem file) before you can continue. [Store it in a secure and accessible location](#). You will not be able to download the file again after it's created.

Cancel Launch Instances

Launch instance wizard | EC2 Main

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

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## Launch Status

Your instances are now launching

The following Instance launches have been initiated: i-0a9ccb373c2a34922 View launch log

Get notified of estimated charges

Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

The screenshot shows the AWS EC2 Management Console. On the left, there's a sidebar with options like EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances (selected), Instances (New), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances (New), Dedicated Hosts, Scheduled Instances, Capacity Reservations, and Images. The main area displays 'Instances (1/1) Info'. A table lists one instance: Name (webserver), Instance ID (i-0a9ccb373c2a34922), Instance state (Running), Instance type (t2.medium), Status check (-), Alarm status (No alarms), and Availability Zone (us-east-1d). Below this, a detailed view for 'Instance: i-0a9ccb373c2a34922 (webserver)' is shown, including Instance ID (i-0a9ccb373c2a34922 (webserver)), Public IPv4 address (54.196.255.201 | open address), Private IPv4 addresses (172.31.24.207), IPv6 address (-), Instance state (Running), and Public IPv4 DNS (ec2-54-196-255-201.compute-1.amazonaws.com | open address).

4.6 Put key In MobaXterm :-> ssh -i "webserver-icin.pem" ubuntu@ec2-54-196-255-201.compute-1.amazonaws.com

The screenshot shows the MobaXterm application window. The menu bar includes Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, Help, and a toolbar with Session, Servers, Tools, Games, Sessions, View, Split, MultiExec, Tunnelling, Packages, Settings, and Help. The main interface has a 'Quick connect' section with a star icon and 'User sess'. A terminal window titled '2 ./home/mobaxterm' is open, displaying the MobaXterm Personal Edition v21.4 welcome message. It mentions accessible drives through /drives, forwarded DISPLAY, non-persistent HOME folder, and command status symbols. It also notes that this is the Personal edition and provides a link for more information: <https://mobaxterm.mobatek.net/download.html>. Below the message, a command prompt shows the date and time: 19/11/2021 20:48:08. The bottom status bar indicates an unregistered version.

Connect to instance | EC2 Manager + https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#ConnectToInstance:instanceId=i-0a9ccb373c2a34922

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EC2 Instances i-0a9ccb373c2a34922 Connect to instance

**Connect to instance** Info

Connect to your instance i-0a9ccb373c2a34922 (webserver) using any of these options

EC2 Instance Connect Session Manager **SSH client** EC2 Serial Console

Instance ID

i-0a9ccb373c2a34922 (webserver)

1. Open an SSH client.  
2. Locate your private key file. The key used to launch this instance is webserver-icin.pem  
3. Run this command, if necessary, to ensure your key is not publicly viewable.  
chmod 400 webserver-icin.pem  
4. Connect to your instance using its Public DNS:  
ec2-54-196-255-201.compute-1.amazonaws.com

Example:

ssh -i "webserver-icin.pem" ubuntu@ec2-54-196-255-201.compute-1.amazonaws.com

**Note:** In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.

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ubuntu@ip-172-31-24-207: ~

Terminal Sessions View Xserver Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

X server Exit

Quick connect 2. ubuntu@ip-172-31-24-207: ~

19/11/2021 20:48:08 /home/mobaxterm cd U:/keys

19/11/2021 20:48:44 /drives/u/keys ssh -i "webserver-icin.pem" ubuntu@ec2-54-196-255-201.compute-1.amazonaws.com

Warning: Permanently added 'ec2-54-196-255-201.compute-1.amazonaws.com' (RSA) to the list of known hosts.

Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.11.0-1020-aws x86\_64)

\* Documentation: <https://help.ubuntu.com>  
\* Management: <https://landscape.canonical.com>  
\* Support: <https://ubuntu.com/advantage>

System information as of Fri Nov 19 15:19:36 UTC 2021

System load: 0.02 Processes: 113  
Usage of /: 8.8% of 15.45GB Users logged in: 0  
Memory usage: 5% IPv4 address for eth0: 172.31.24.207  
Swap usage: 0%

1 update can be applied immediately.  
To see these additional updates run: apt list --upgradable

The list of available updates is more than a week old.  
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/\*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.

/usr/bin/xauth: file /home/ubuntu/.Xauthority does not exist  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo\_root" for details.

ubuntu@ip-172-31-24-207:~\$

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

## 4.7 Install Jenkins server on MobaXterm :-

```
ubuntu@ip-172-31-24-207: ~
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
X server Exit
Quick connect 2.ubuntu@ip-172-31-24-207: ~ + [x]
Found Ubuntu 20.04.3 LTS (20.04) on /dev/xvda1
done
ubuntu@ip-172-31-24-207:~$ sudo apt install default-jdk -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  at-spi2-core ca-certificates-java default-jdk-headless default-jre default-jre-headless fontconfig-config fonts-dejavu-core fonts-dejavu-extra
  java-common libatk-bridge2.0-0 libatk-wrapper-java libatk-wrapper.java-jni libatk1.0-0 libatk1.0-data libatspi2.0-0 libavahi-client3
  libavahi-common-data libavahi-common3 libcups2 libdrm-amdpui libdrm-intel libdrm-nouveau2 libdrm-radeon1 libfontconfig1 libfontenc1 libgiff libgl1
  libgl1-mesa-dri libglapi-mesa libglvnd0 libglx-mesa0 libglx0 libgraphite2-3 libharfbuzz0b libice6 libjpeg-turbo8 libjpeg8 liblcms2-2
  libllvm12 libpciaccess0 libpcsc-lite1 libpthread-stubs0-dev libsensors-config libsensors5 libsm-dev libsm6 libvkani libwayland-client0 libx11-dev
  libx11-xcb1 libxau-dev libxaw libxcb-dri2-0 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-randr0 libxcb-shape0 libxcb-shm0 libxcb-sync1
  libxcb-xfixes0 libxcb1-dev libxcomposite1 libxdmcp-dev libxfixes3 libxft2 libxi libxinerama1 libxkbfile1 libxmu6 libxpm4 libxrandr2 libxrender1
  libxshmfence1 libxt-dev libxt6 libxtst6 libxv1 libxf86dga1 libxf86vm1 mesa-vulkan-drivers openjdk-11-jdk openjdk-11-jdk-headless openjdk-11-jre
  openjdk-11-jre-headless x11-common x11-utils x11proto-core-dev x11proto-dev xorg-sgml-doctools xtrans-dev
Suggested packages:
  cups-common libice-doc liblcms2-utils pccsd lm-sensors libsm-doc libxcb-doc libxt-doc openjdk-11-demo openjdk-11-source visualvm
  libnss-mdns fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei | fonts-wqy-zenhei fonts-indic mesa-utils
The following NEW packages will be installed:
  at-spi2-core ca-certificates-java default-jdk default-jdk-headless default-jre default-jre-headless fontconfig-config fonts-dejavu-core
  fonts-dejavu-extra java-common libatk-bridge2.0-0 libatk-wrapper-java libatk-wrapper.java-jni libatk1.0-0-data libatspi2.0-0
  libavahi-client3 libavahi-common-data libavahi-common3 libcups2 libdrm-amdpui libdrm-intel libdrm-nouveau2 libdrm-radeon1 libfontconfig1
  libfontenc1 libgiff libgl1 libglapi-mesa libglvnd0 libglx-mesa0 libglx0 libgraphite2-3 libharfbuzz0b libice6 libice6
  libjpeg-turbo8 libjpeg8 liblcms2-2 libllvm12 libpciaccess0 libpcsc-lite1 libpthread-stubs0-dev libsensors-config libsensors5 libsm-dev libsm6
  libvkani libwayland-client0 libx11-dev libx11-xcb1 libxau-dev libxaw libxcb-dri2-0 libxcb-dri3-0 libxcb-glx0 libxcb-present0 libxcb-randr0
  libxcb-shape0 libxcb-shm0 libxcb-sync1 libxcb-xfixes0 libxcb1-dev libxcomposite1 libxdmcp-dev libxfixes3 libxft2 libxi libxinerama1 libxkbfile1 libxmu6 libxpm4 libxrindr2 libxrende1
  libxshmfence1 libxt-dev libxt6 libxtst6 libxv1 libxf86dga1 libxf86vm1 mesa-vulkan-drivers openjdk-11-jdk openjdk-11-jdk-headless openjdk-11-jre
  openjdk-11-jre-headless x11-common x11-utils x11proto-core-dev x11proto-dev xorg-sgml-doctools xtrans-dev
0 upgraded, 93 newly installed, 0 to remove and 0 not upgraded.
Need to get 304 MB of archives.
After this operation, 890 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/main amd64 libatspi2.0-0 amd64 2.36.0-2 [64.2 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/main amd64 x11-common all 1:7.7+19ubuntu14 [22.3 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/main amd64 libxtst6 amd64 2:1.2.3-1 [12.8 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/main amd64 at-spi2-core amd64 2.36.0-2 [48.7 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/main amd64 java-common all 0.72 [6816 B]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 libavahi-common-data amd64 0.7-4ubuntu7.1 [21.4 kB]
```

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```
ubuntu@ip-172-31-24-207: ~
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
X server Exit
Quick connect 2.ubuntu@ip-172-31-24-207: ~ + [x]
ubuntu@ip-172-31-24-207:~$ sudo apt install maven -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libapalliance-java libapache-pom-java libatinject-jsr330-api-java libcdi-api-java libcommons-cli-java libcommons-io-java libcommons-lang3-java
  libcommons-parent-java libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java libguava-java libguice-java
  libhawtjni-runtime-java libjansi-java libjansi-native-java libjsr305-java libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java
  libmaven3-core-java libplexus-cipher-java libplexus-classworlds-java libplexus-component-annotations-java libplexus-interpolation-java
  libplexus-sec-dispatcher-java libplexus-utils2-java libtsu-inject-java libtsu-plexus-java libtslf4j-java libwagon-file-java
  libwagon-http-shaded-java libwagon-provider-api-java
Suggested packages:
  libapalliance-java-doc libatinject-jsr330-api-java-doc libservlet3.1-java libcommons-io-java-doc libcommons-lang3-java-doc libasm-java
  libcglib-java libjsr305-java-doc libmaven-shared-utils-java-doc liblogback-java libplexus-cipher-java-doc libplexus-classworlds-java-doc
  libplexus-sec-dispatcher-java-doc libplexus-utils2-java-doc junit4 testng libcommons-logging-java liblog4j1.2-java
The following NEW packages will be installed:
  libapalliance-java libapache-pom-java libatinject-jsr330-api-java libcdi-api-java libcommons-cli-java libcommons-io-java libcommons-lang3-java
  libcommons-parent-java libgeronimo-annotation-1.3-spec-java libgeronimo-interceptor-3.0-spec-java libguava-java libguice-java
  libhawtjni-runtime-java libjansi-java libjansi-native-java libjsr305-java libmaven-parent-java libmaven-resolver-java libmaven-shared-utils-java
  libmaven3-core-java libplexus-cipher-java libplexus-classworlds-java libplexus-component-annotations-java libplexus-interpolation-java
  libplexus-sec-dispatcher-java libplexus-utils2-java libtsu-inject-java libtsu-plexus-java libtslf4j-java libwagon-file-java
  libwagon-http-shaded-java libwagon-provider-api-java maven
0 upgraded, 33 newly installed, 0 to remove and 0 not upgraded.
Need to get 9208 kB of archives.
After this operation, 12.1 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libapache-pom-java all 18-1 [4720 B]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libatinject-jsr330-api-java all 1.0+ds1-5 [5348 B]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libgeronimo-interceptor-3.0-spec-java all 1.0.1-4fakesync [8616 B]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libcdi-api-java all 1.2-2 [54.5 kB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libcommons-cli-java all 1.4-1 [53.8 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libcommons-parent-java all 43-1 [10.8 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libcommons-io-java all 2.6-2ubuntu0.20.04.1 [198 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libcommons-lang3-java all 3.8-2 [458 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libgeronimo-annotation-1.3-spec-java all 1.0-1 [10.7 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libjsr305-java all 0.1+svn49-11 [27.0 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libguava-java all 19.0-1 [2028 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libapalliance-java all 20070526-6 [9084 B]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 libguice-java all 4.2.1-1 [962 kB]
```

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```
ubuntu@ip-172-31-24-207: ~
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect 2. ubuntu@ip-172-31-24-207: ~ + 
Setting up libatinject-jsr330-api-java (1.0+ds1-5) ...
Setting up libplexus-interpolation-java (1.26-1) ...
Setting up libplexus-sec-dispatcher-java (1.4-4) ...
Setting up libwagon-http-shaded-java (3.3.4-1) ...
Setting up libcdt-api-java (1.2-2) ...
Setting up libhawtjni-runtime-java (1.17-1) ...
Setting up libwagon-provider-api-java (3.3.4-1) ...
Setting up libmaven-parent-java (31-2) ...
Setting up libcommons-parent-java (43-1) ...
Setting up libmaven-resolver-java (1.4.1-1) ...
Setting up libguava-java (19.0-1) ...
Setting up libcommons-lang3-java (3.8-2) ...
Setting up libjansi-native-java (1.8-1) ...
Setting up libwagon-file-java (3.3.4-1) ...
Setting up libcommons-io-java (2.6-2ubuntu0.20.04.1) ...
Setting up libguice-java (4.2.1-1) ...
Setting up libjansi-java (1.18-1) ...
Setting up libmaven-shared-utils-java (3.3.0-1) ...
Setting up libsisu-inject-java (0.3.3-1) ...
Setting up libsisu-plexus-java (0.3.3-3) ...
Setting up libmaven3-core-java (3.6.3-1) ...
Setting up maven (3.6.3-1) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
ubuntu@ip-172-31-24-207:~$ wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
OK
ubuntu@ip-172-31-24-207:~$ sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'
ubuntu@ip-172-31-24-207:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:5 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:6 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Hit:7 http://security.ubuntu.com/ubuntu focal-security InRelease
Get:8 https://pkg.jenkins.io/debian-stable binary/ Packages [20.9 kB]
Fetched 23.8 kB in 0s (48.5 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-24-207:~$ 

< > pw terminal
```

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```
ubuntu@ip-172-31-24-207: ~
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect 2. ubuntu@ip-172-31-24-207: ~ + 
Setting up libguice-java (4.2.1-1) ...
Setting up libjansi-java (1.18-1) ...
Setting up libmaven-shared-utils-java (3.3.0-1) ...
Setting up libsisu-inject-java (0.3.3-1) ...
Setting up libsisu-plexus-java (0.3.3-3) ...
Setting up libmaven3-core-java (3.6.3-1) ...
Setting up maven (3.6.3-1) ...
update-alternatives: using /usr/share/maven/bin/mvn to provide /usr/bin/mvn (mvn) in auto mode
ubuntu@ip-172-31-24-207:~$ wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
OK
ubuntu@ip-172-31-24-207:~$ sudo sh -c 'echo deb https://pkg.jenkins.io/debian-stable binary/ > /etc/apt/sources.list.d/jenkins.list'
ubuntu@ip-172-31-24-207:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:5 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:6 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Hit:7 http://security.ubuntu.com/ubuntu focal-security InRelease
Get:8 https://pkg.jenkins.io/debian-stable binary/ Packages [20.9 kB]
Fetched 23.8 kB in 0s (48.5 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-24-207:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  daemon net-tools
The following NEW packages will be installed:
  daemon jenkins net-tools
0 upgraded, 3 newly installed, 0 to remove and 0 not upgraded.
Need to get 72.2 MB of archives.
After this operation, 73.5 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 daemon amd64 0.6.4-1build2 [96.3 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/main amd64 net-tools amd64 1.60+git20180626.aebd88e-1ubuntu1 [196 kB]
Get:3 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.303.3 [71.9 MB]
70% [3 jenkins 51.1 MB/71.9 MB 71%]
3678 kB/s 5s
```

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## 4.8 Install Docker server in MobaXterm :-

```
ubuntu@ip-172-31-24-207: ~
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect 2. ubuntu@ip-172-31-24-207: ~ + [x]
Processing triggers for systemd (245.4-ubuntu3.13) ...
ubuntu@ip-172-31-24-207:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease
Ign:4 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:5 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:6 http://security.ubuntu.com/ubuntu focal-security InRelease
Reading package lists... Done
ubuntu@ip-172-31-24-207:~$ sudo apt-get install apt-transport-https ca-certificates curl gnupg lsb-release -y
Reading package lists... Done
Building dependency tree
Reading state information... Done
lsb-release is already the newest version (11.1.0ubuntu2).
lsb-release set to manually installed.
ca-certificates is already the newest version (20210119~20.04.2).
ca-certificates set to manually installed.
curl is already the newest version (7.68.0-1ubuntu2.7).
curl set to manually installed.
gnupg is already the newest version (2.2.19-3ubuntu2.1).
gnupg set to manually installed.
The following NEW packages will be installed:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 4680 B of archives.
After this operation, 162 kB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 apt-transport-https all 2.0.6 [4680 B]
Fetched 4680 B in 0s (323 kB/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 98094 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.0.6_all.deb ...
Unpacking apt-transport-https (2.0.6) ...
Setting up apt-transport-https (2.0.6) ...
ubuntu@ip-172-31-24-207:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
ubuntu@ip-172-31-24-207:~$ echo "deb [arch=amd64 signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
ubuntu@ip-172-31-24-207:~$ [x]

< > [x]
pw terminal
```

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```
ubuntu@ip-172-31-24-207: ~
Terminal Sessions View Xserver Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect 2. ubuntu@ip-172-31-24-207: ~ + [x]
Hit:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease
Get:4 https://download.docker.com/linux/ubuntu focal InRelease [57.7 kB]
Ign:5 https://pkg.jenkins.io/debian-stable binary/ InRelease
Hit:6 https://pkg.jenkins.io/debian-stable binary/ Release
Hit:7 http://security.ubuntu.com/ubuntu focal-security InRelease
Get:8 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages [12.9 kB]
Fetched 70.6 kB in 1s (129 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-24-207:~$ sudo apt-get install docker-ce docker-ce-cli containerd.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  docker-ce-rootless-extras docker-scan-plugin pigz slirp4netns
Suggested packages:
  aufs-tools cgroupofs-mount | cgroup-lite
The following NEW packages will be installed:
  containerd.io docker-ce docker-ce-cli docker-ce-rootless-extras docker-scan-plugin pigz slirp4netns
0 upgraded, 7 newly installed, 0 to remove and 0 not upgraded.
Need to get 95.3 MB of archives.
After this operation, 402 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 pigz amd64 2.4-1 [57.4 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 slirp4netns amd64 0.4.3-1 [74.3 kB]
Get:3 https://download.docker.com/linux/ubuntu focal/stable amd64 containerd.io amd64 1.4.12-1 [23.7 MB]
Get:4 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce-cli amd64 5:20.10.11~3-0~ubuntu-focal [38.8 kB]
Get:5 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce amd64 5:20.10.11~3-0~ubuntu-focal [21.2 MB]
Get:6 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-ce-rootless-extras amd64 5:20.10.11~3-0~ubuntu-focal [7920 kB]
Get:7 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-scan-plugin amd64 0.9.0~ubuntu-focal [3518 kB]
Fetched 95.3 MB in 2s (61.1 MB/s)
Selecting previously unselected package pigz.
(Reading database ... 98098 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../1-containerd.io_1.4.12-1_amd64.deb ...
Unpacking containerd.io (1.4.12-1) ...

< > [x]
pw terminal
```

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## 4.9 Run Jenkins on port /0.0.0.0:8080

Instances | EC2 Management Con X Sign in [Jenkins] Not secure | http://54.196.255.201:8080/login?from=%2F

## Getting Started

# Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log ([not sure where to find it?](#)) and this file on the server:

`/var/lib/jenkins/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

Administrator password

Continue

- Put the Administrator password as shown in the picture -

```
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu3.13) ...
ubuntu@ip-172-31-24-207:~$ sudo cat /var/lib/jenkins/secrets/initialAdminPassword
3a8b3ac6a6f9495dbc6600ff130d0b24
ubuntu@ip-172-31-24-207:~$
```

#### 4.10 Put Username and Password in Jenkins as :

- Username - admin
- Password - admin

Instances | EC2 Management Con X Setup Wizard [Jenkins] Not secure | http://54.196.255.201:8080

## Getting Started

# Create First Admin User

Username:

Password:

Confirm password:

Full name:

E-mail address:

Jenkins 2.303.3 Skip and continue as admin Save and Continue

Instances | EC2 Management Con X Setup Wizard [Jenkins] X +

Not secure | http://54.196.255.201:8080

## Getting Started

# Instance Configuration

Jenkins URL: <http://54.196.255.201:8080/>

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the `BUILD_URL` environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.303.3 Not now Save and Finish

Instances | EC2 Management Con X Dashboard [Jenkins] X +

Not secure | http://54.196.255.201:8080

# Jenkins

Dashboard

- New Item
- People
- Build History
- Manage Jenkins
- My Views
- Lockable Resources
- New View

Build Queue

No builds in the queue.

Build Executor Status

| Idle | 2 |
|------|---|
|------|---|

Welcome to Jenkins!

This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project

Create a job →

Set up a distributed build

Set up an agent →

Configure a cloud →

Learn more about distributed builds →

search

Anushka log out

The screenshot shows the Jenkins 'New Item' configuration page. The title bar says 'New Item [Jenkins]'. The main heading is 'Enter an item name'. A text input field contains 'icin-bank-pipeline'. Below the input field is a note '» Required field'. There are three options listed: 'Freestyle project' (selected), 'Pipeline', and 'Multi-configuration project'. Each option has a brief description and a small icon. The 'Pipeline' section is expanded, showing its definition: 'Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.' The 'Folder' section is also partially visible.

#### 4.11 Put the git link in Repository URL :

<https://github.com/AnushkaSharma9/Capstone-Project-ICIN-Online-Banking.git>

The screenshot shows the Jenkins 'icin-bank-pipeline' configuration page. The title bar says 'icin-bank-pipeline Config [Jenkins]'. The main navigation bar includes 'General', 'Build Triggers', 'Advanced Project Options' (which is selected), and 'Pipeline'. The 'Advanced Project Options' tab has several sections: 'Pipeline', 'Definition' (set to 'Pipeline script from SCM'), 'SCM' (set to 'Git'), 'Repositories' (with 'Repository URL' set to 'https://github.com/AnushkaSharma9/Capstone-Project-ICIN-Online-Banking.git'), 'Credentials' (empty), and 'Advanced...' and 'Add Repository' buttons. At the bottom are 'Save' and 'Apply' buttons.

Instances | EC2 Management Con x icin-bank-pipeline Config [Jenkin x AnushkaSharma9/Capstone-Proj x +

Not secure | http://54.196.255.201:8080/job/icin-bank-pipeline/configure

Dashboard > icin-bank-pipeline >

General Build Triggers Advanced Project Options Pipeline

Branch Specifier (blank for 'any')  Add Branch

Repository browser (Auto)

Additional Behaviours Add ▾

Script Path Backend Final/icin\_bank\_final/Jenkinsfile

Lightweight checkout

Pipeline Syntax

Save Apply

Instances | EC2 Management Con x icin-bank-pipeline [Jenkins] x Capstone-Project-ICIN-Online-B x +

Not secure | http://54.196.255.201:8080/job/icin-bank-pipeline/

Jenkins

Dashboard > icin-bank-pipeline >

Back to Dashboard Status Changes Build Now Configure Delete Pipeline Full Stage View Rename Pipeline Syntax

Build History trend ^ find Atom feed for all Atom feed for failures

## Pipeline icin-bank-pipeline

This is a Pipeline for Online Banking System called ICIN Bank.

Recent Changes

## Stage View

No data available. This Pipeline has not yet run.

## Permalinks

Instances | EC2 Management Con x icin-bank-pipeline [Jenkins] x Capstone-Project-ICIN-Online-B x +

Not secure | http://54.196.255.201:8080/job/icin-bank-pipeline/

Dashboard > icin-bank-pipeline >

[Back to Dashboard](#)

[Status](#)

[Changes](#)

[Build Now](#)

[Configure](#)

[Delete Pipeline](#)

[Full Stage View](#)

[Rename](#)

[Pipeline Syntax](#)

[Git Polling Log](#)

**Build History** trend ^

find

#1 Nov 19, 2021, 5:02 PM 54.196.255.201:8080/job/icin-bank-pipeline/changes

## Pipeline icin-bank-pipeline

This is a Pipeline for Online Banking System called ICIN Bank.

[Edit description](#)

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 [Recent Changes](#)

### Stage View

| Declarative: Checkout SCM  | Maven Compile | Maven Test | Maven Build | Docker Build | Docker Deploy |
|----------------------------|---------------|------------|-------------|--------------|---------------|
| 212ms                      | 53ms          | 44ms       | 53ms        | 56ms         | 40ms          |
| #1 Nov 19 22:32 No Changes | 212ms         | 53ms       | 44ms        | 53ms         | 56ms          |

### Permalinks

- Last build (#1), 27 sec ago
- Last stable build (#1), 27 sec ago

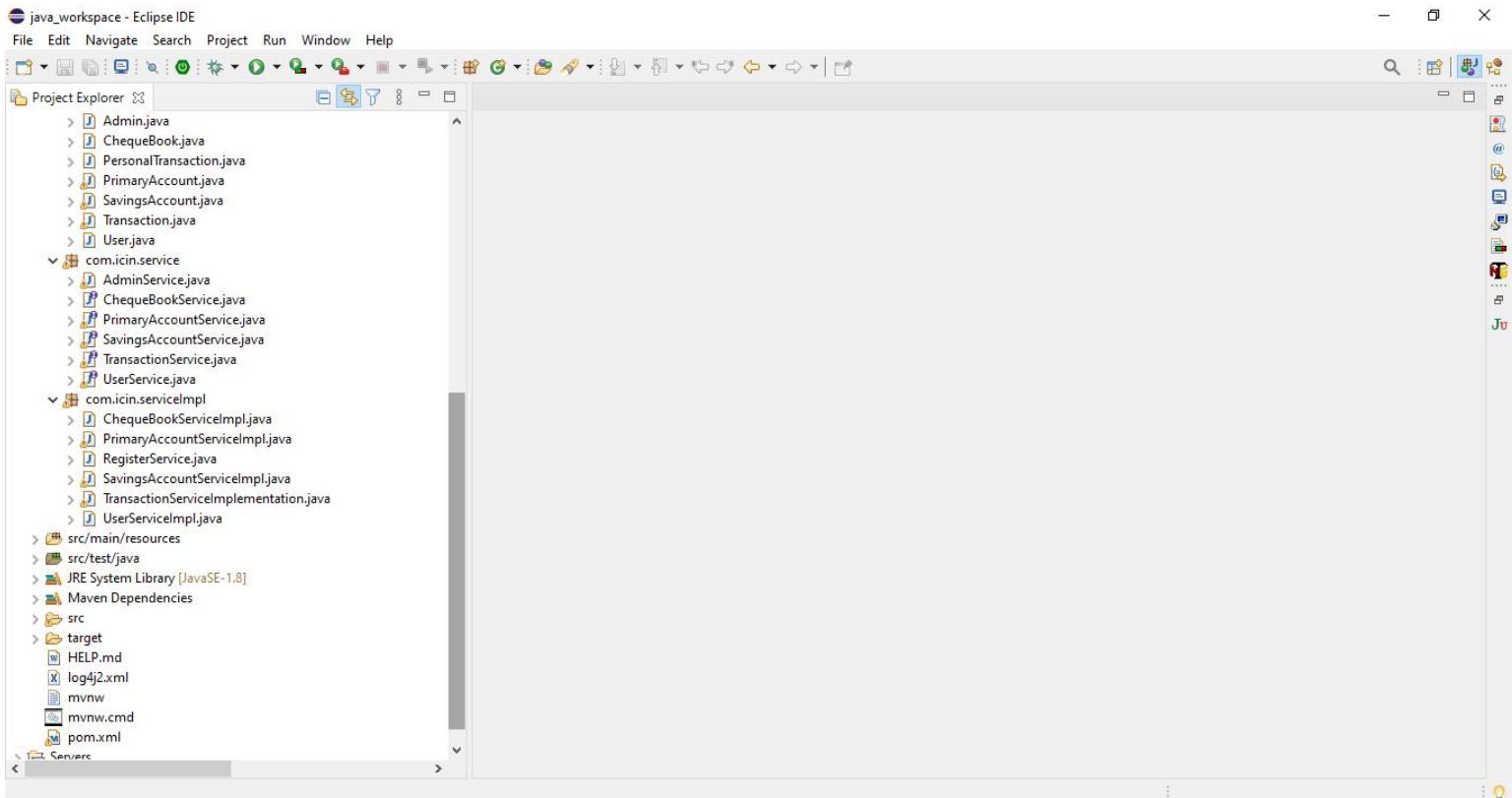
## ✧ DIRECTORY STRUCTURE / PACKAGE

java\_workspace - Eclipse IDE

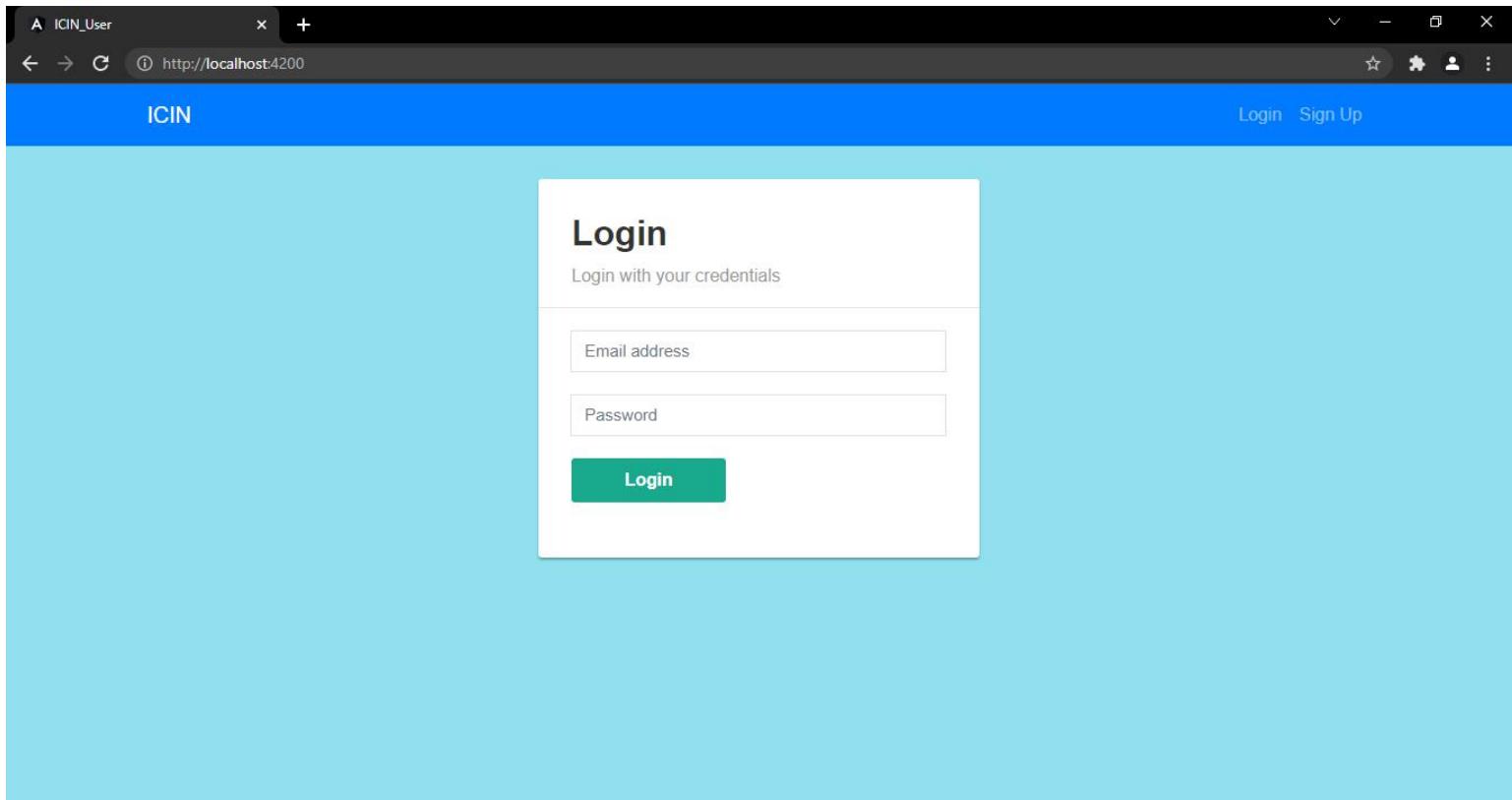
File Edit Navigate Search Project Run Window Help

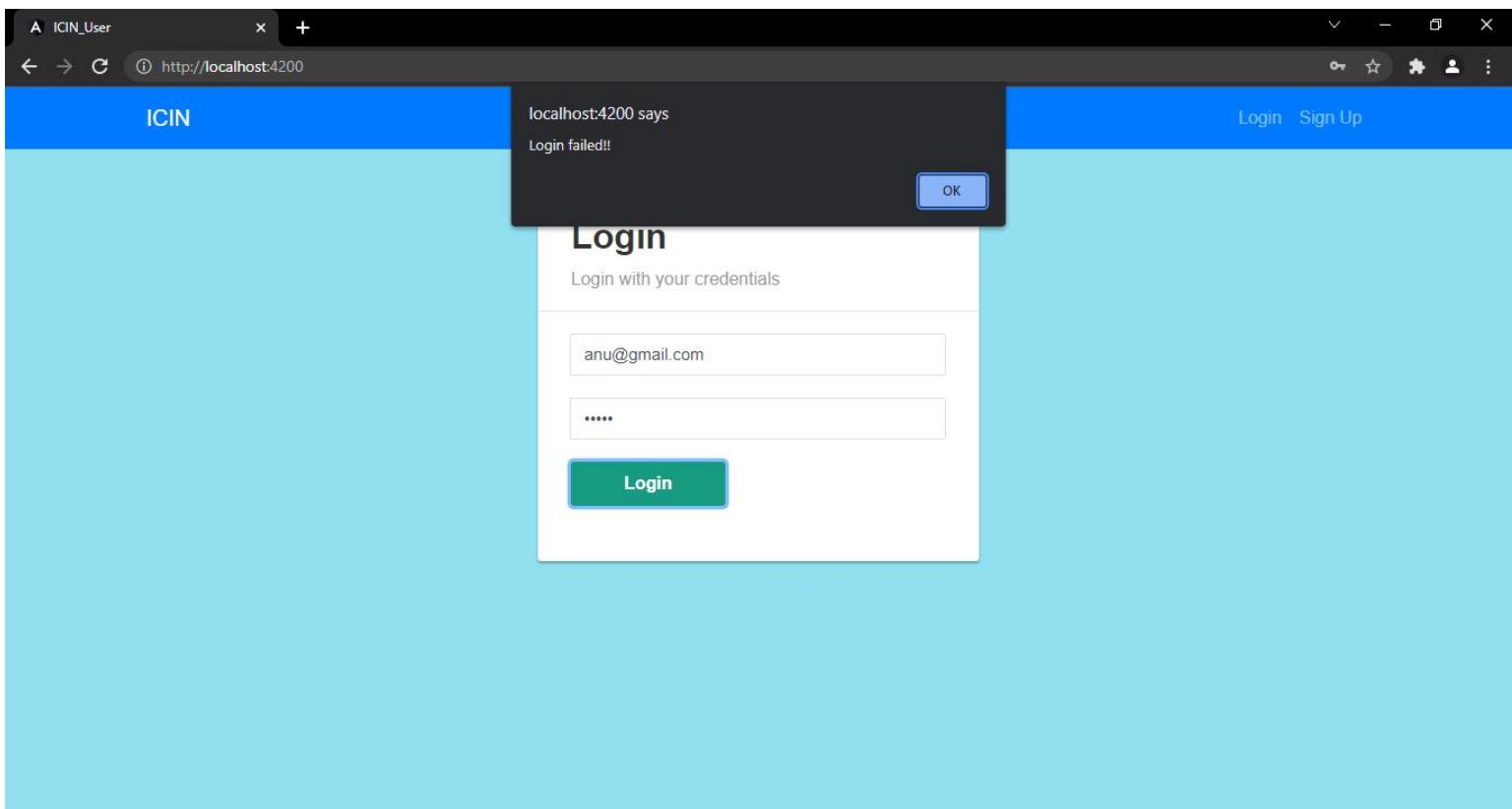
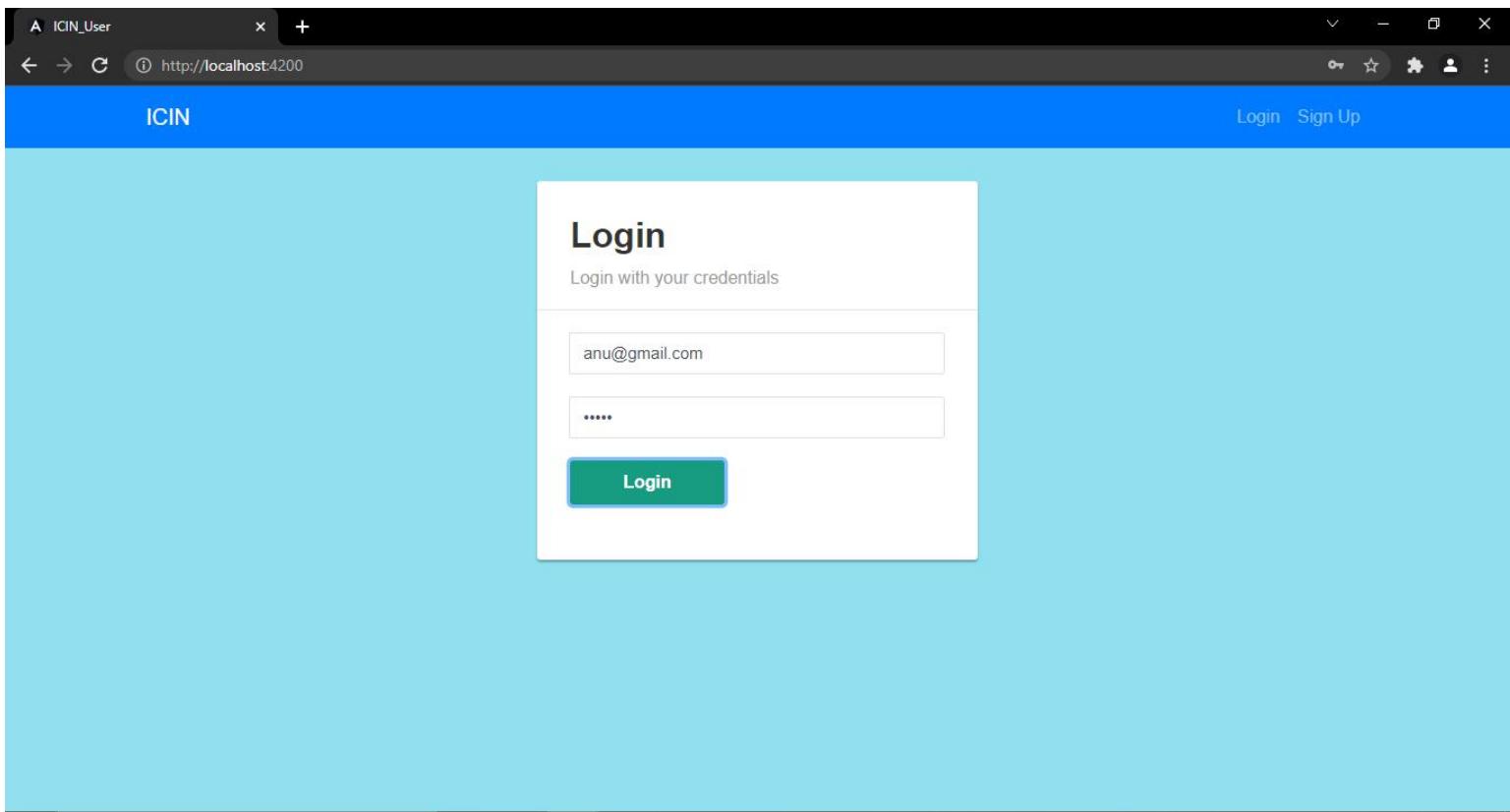
Project Explorer

- ICIN\_FinalBackend (in icin\_bank\_final) [boot] [devtools]
  - src/main/java
    - com.icin.bank
      - BankApplication.java
    - com.icin.controller
      - AccController.java
      - AdminController.java
      - CheckbookController.java
      - TransactionController.java
      - UserController.java
    - com.icin.dao
      - ChequeBookDao.java
      - MyRepo.java
      - PersonalTransactionDao.java
      - PrimaryAccountDao.java
      - SavingsAccountDao.java
      - TransactionRepository.java
      - UserRepo.java
    - com.icin.exceptions
      - AccountNotFoundException.java
      - InvalidAccountException.java
      - InvalidTransactionException.java
      - ResourceNotFoundException.java
    - com.icin.model
      - AccountSnapshotContainer.java
      - Admin.java
      - ChequeBook.java
      - PersonalTransaction.java
      - PrimaryAccount.java
      - SavingsAccount.java
      - Transaction.java
      - User.java
    - com.icin.service



- ✧ SCREENSHOTS OF OUTPUT
- ✧ SCREENSHOTS OF USER / ICIN PORTAL





A ICIN\_User X + ⌂ http://localhost:4200/register

ICIN Login Sign Up

## Sign Up

Please fill in this form to create an account!

**Next**

A ICIN\_User X + ⌂ http://localhost:4200/register/contactDetails

ICIN Login Sign Up

## Sign Up

Please fill in this form to create an account!

**Next**

A ICIN\_User X + ⌂ http://localhost:4200/register/kycDetails

ICIN Login Sign Up

## Sign Up

Please fill in this form to create an account!

**Next**

A ICIN\_User X + ⌂ http://localhost:4200/register/addressDetails

ICIN Login Sign Up

## Sign Up

Please fill in this form to create an account!

**Next**

A ICIN\_User X + http://localhost:4200/register/userRegistration

ICIN

Login Sign Up

## Sign Up

Please fill in this form to create an account!

Anushka

\*\*\*\*\*

\*\*\*\*\*

I accept the [Terms of Use & Privacy Policy](#)

**Sign Up**

A ICIN\_User X + http://localhost:4200/user/home

ICIN Home Accounts Transfer Request Anushka

### Primary Account 0 Rs

[View Details](#)

### Deposit

[Go to deposits](#)

### Withdrawal

[Go to Withdrawal](#)

### Saving Account 0 Rs

[View Details](#)

A ICIN\_User X + http://localhost:4200/user/depositFund

ICIN Home Accounts ▾ Transfer Request ▾ Anushka ▾

Account type

Primary Account

Balance

0

Amount to be deposited

20000

Deposit Money

A ICIN\_User X + http://localhost:4200/user/depositFund

ICIN Home Accounts ▾ Transfer Anushka ▾

localhost4200 says

Money deposited successfully!!

OK

Account type

Primary Account

Balance

0

Amount to be deposited

20000

Deposit Money

A ICIN\_User X + http://localhost:4200/user/withdrawFund

ICIN Home Accounts ▾ Transfer Request ▾ Anushka ▾

Please select your account type

Primary Account

Balance

20000

Amount to be withdrawn

200

Withdraw Money

A ICIN\_User X + http://localhost:4200/user/withdrawFund

ICIN Home Accounts ▾ Transfer Anushka ▾

localhost:4200 says

Money Withdrawn successfully!!

OK

Please select your account type

Primary Account

Balance

20000

Amount to be withdrawn

200

Withdraw Money

A ICIN\_User X + http://localhost:4200/user/depositFund

ICIN Home Accounts ▾ Transfer Request ▾ Anushka ▾

Account type

Saving Account

Balance

0

Amount to be deposited

5000

Deposit Money

A ICIN\_User X + http://localhost:4200/user/depositFund

ICIN Home Accounts ▾ Transfer Anushka ▾

localhost:4200 says

Money deposited successfully!!

OK

Account type

Saving Account

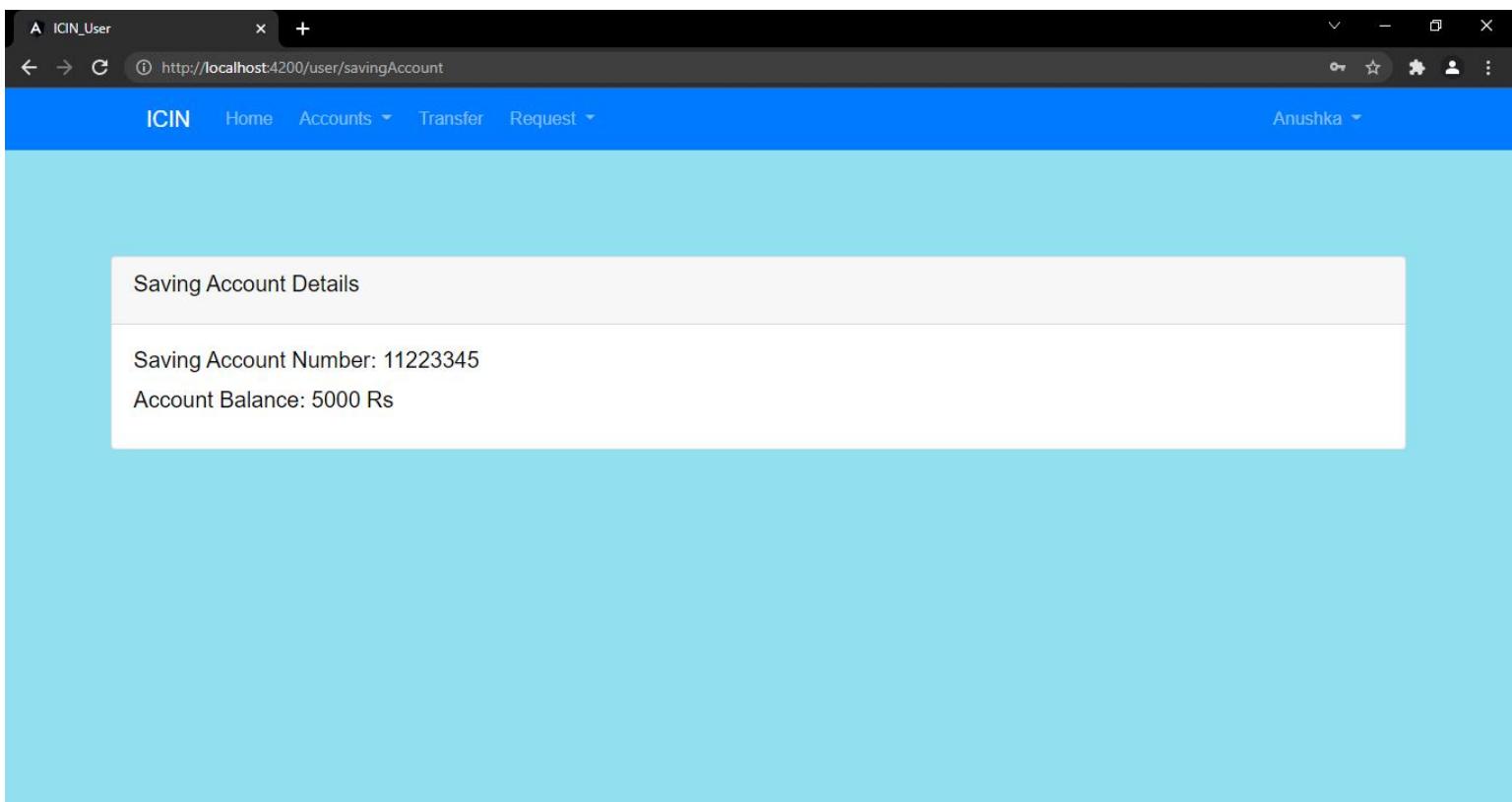
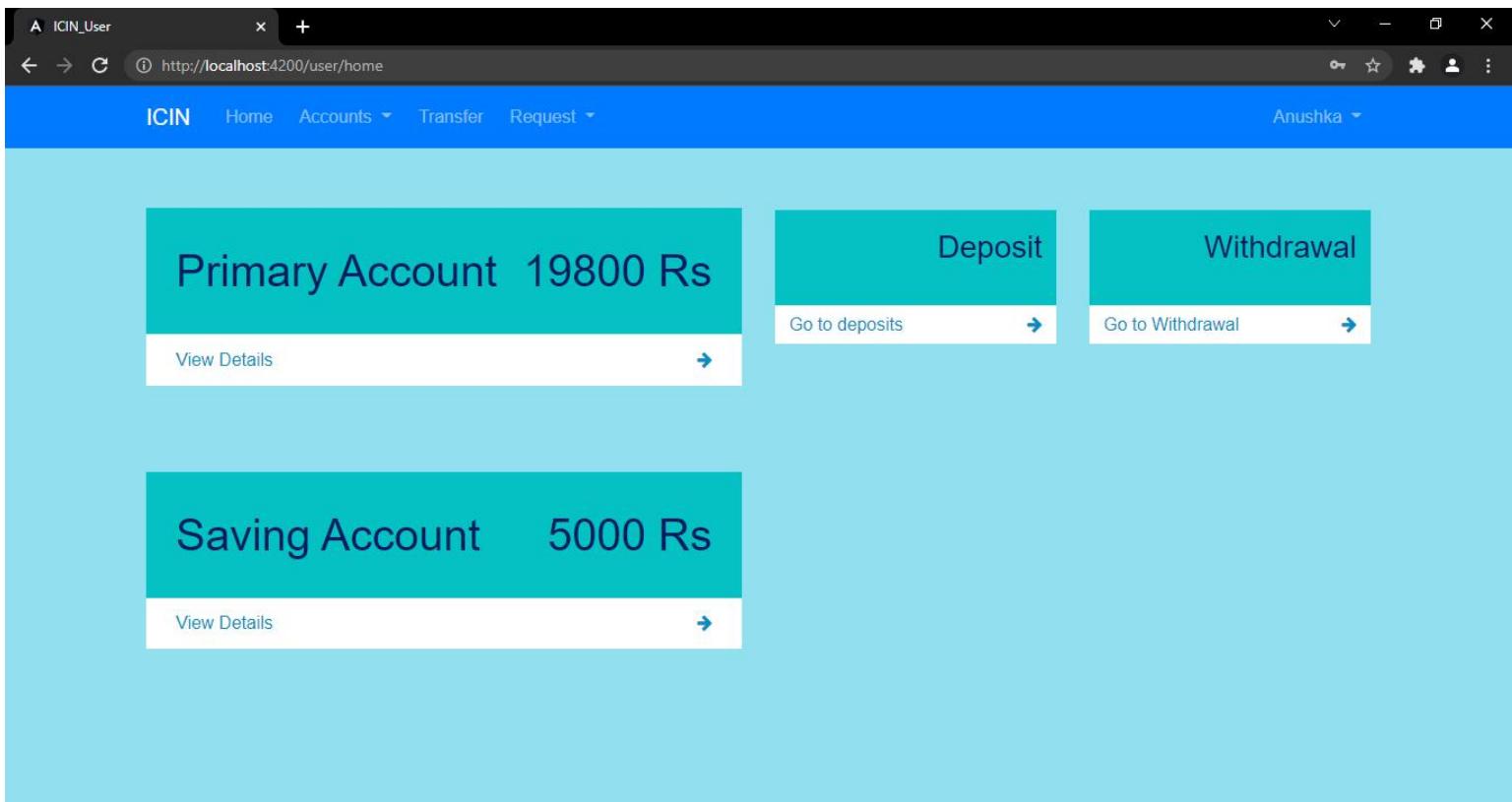
Balance

0

Amount to be deposited

5000

Deposit Money



A ICIN\_User X + http://localhost:4200/user/transferFundRequest

ICIN Home Accounts Transfer Request Anushka

Account Type  
Primary Account

Balance  
19800

Beneficiary Name  
SWH

Beneficiary's Account Number  
ICIN2211

Beneficiary IFSC Code  
ICIN332

Amount to be transferred  
2000

A ICIN\_User X + http://localhost:4200/user/transferFundRequest

Beneficiary Name  
SWH

Beneficiary's Account Number  
ICIN2211

Beneficiary IFSC Code  
ICIN332

Amount to be transferred  
2000

Transfer Type  
IMPS

Optional Message

Transfer Funds

A ICIN\_User x + v - o X http://localhost:4200/user/transferFundRequest

localhost:4200 says  
Transaction Successfull

OK

Beneficiary Name: EWEW

Beneficiary's Account Number: 22113345

Beneficiary IFSC Code: ICI

Amount to be transferred: 23

Transfer Type: IMPS

Optional Message:

Transfer Funds

A ICIN\_User x + v - o X http://localhost:4200/user/primaryAccount

ICIN Home Accounts ▾ Transfer Request ▾ Anushka ▾

Primary Account: 22113345

Account Balance: 19800 Rs

Recent Transactions

| Transaction Id | Description   | Beneficiary's Account Number | Amount Transferred |
|----------------|---------------|------------------------------|--------------------|
| 1              | Fund Transfer | 22113345                     | 23 Rs              |

A ICIN\_User X + http://localhost:4200/user/chequeBookRequest

ICIN Home Accounts Transfer Request Anushka

localhost:4200 says  
Chequebook request submitted

OK

Please select your account type

Saving Account

Optional Description

Submit Request

A ICIN\_User X + http://localhost:4200/user/profile

ICIN Home Accounts Transfer Request Anushka

User photo  
Anushka's profile

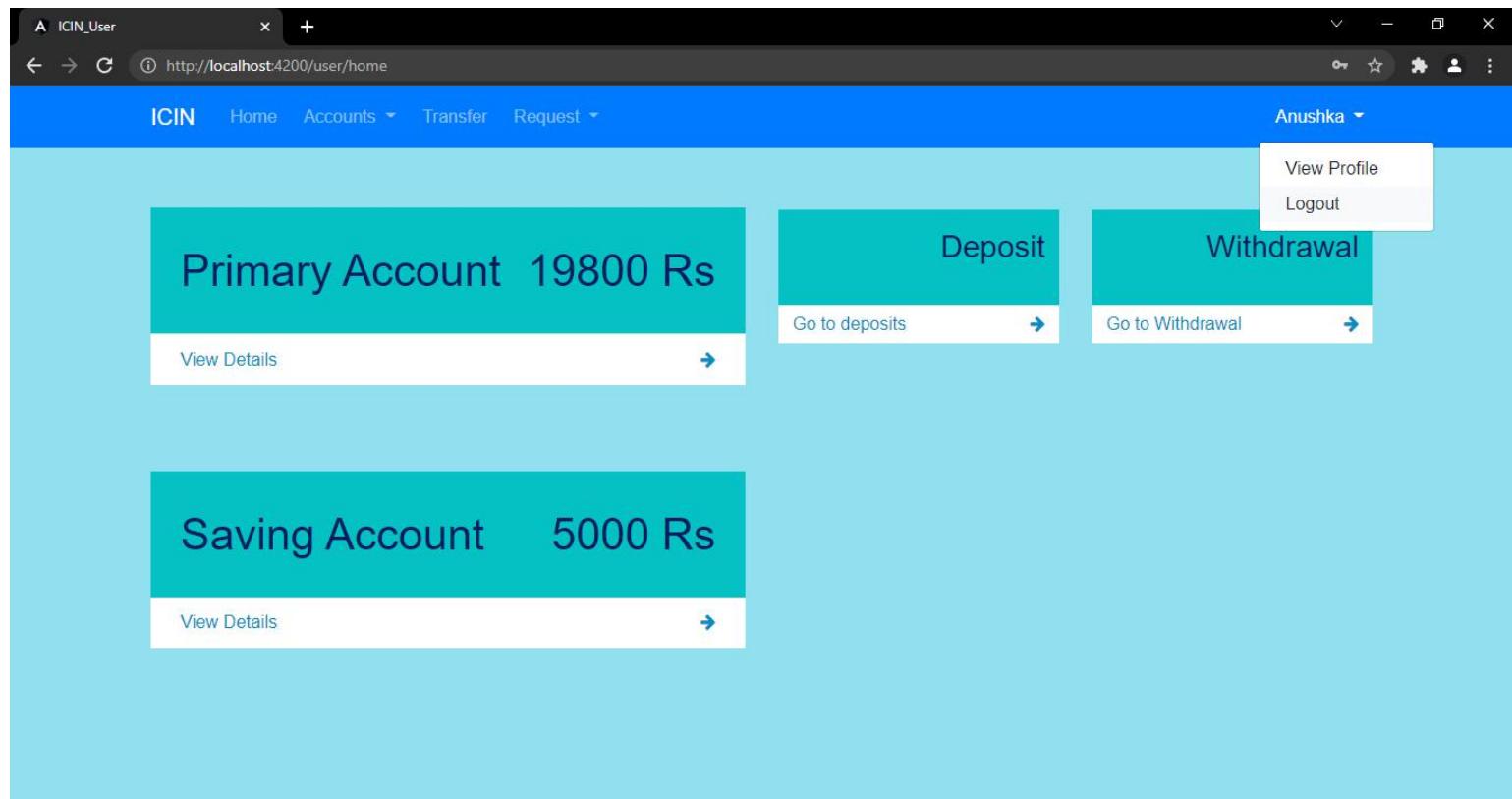
First Name: Anushka  
Last Name: Sharma  
Mobile Number: 7894561233  
Email id: anushka@gmail.com  
Address : 21 street f hoff Agra up 34343

Primary Account

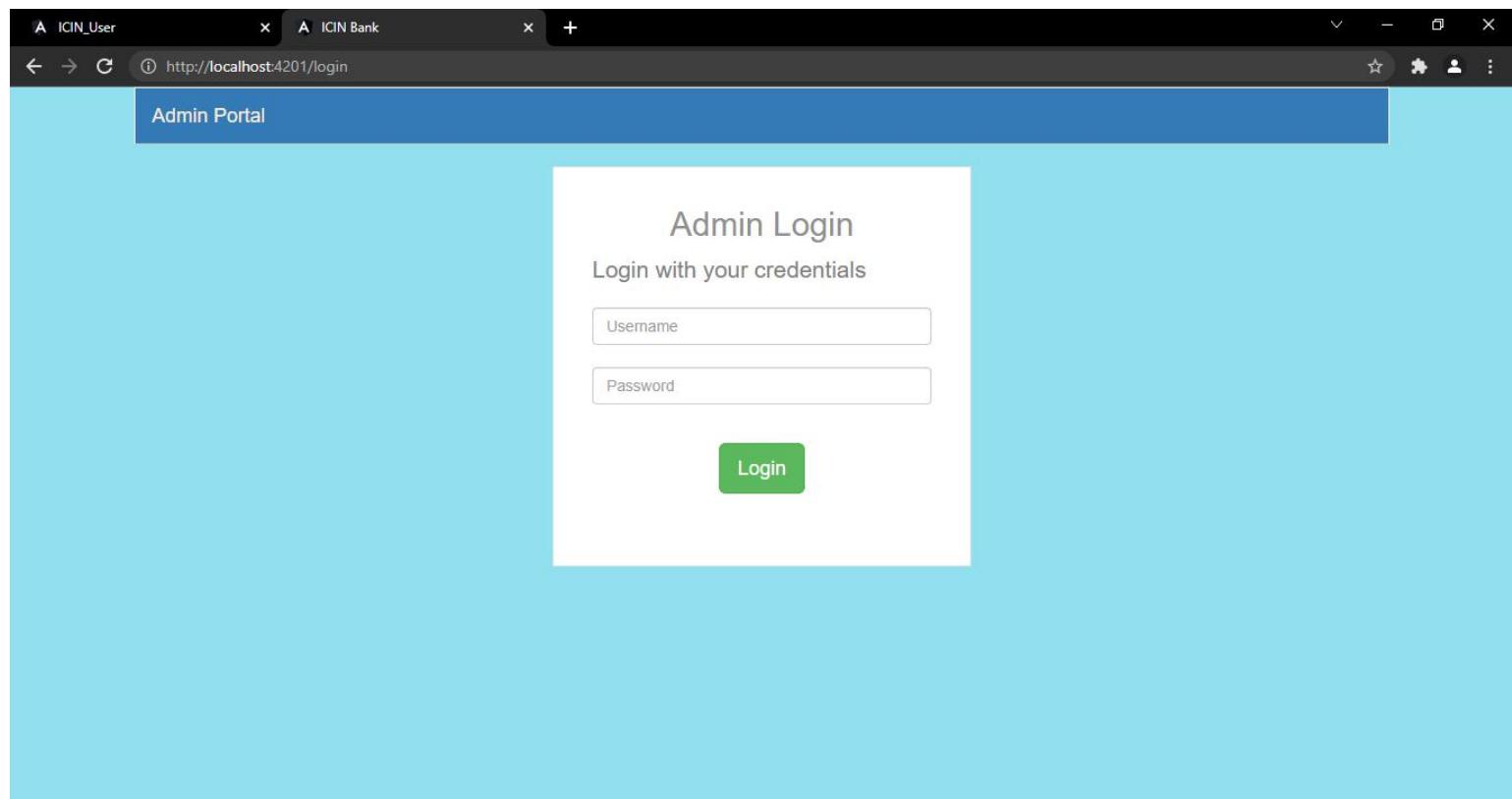
Account Number: 22113345  
Account Balance: 19800 Rs

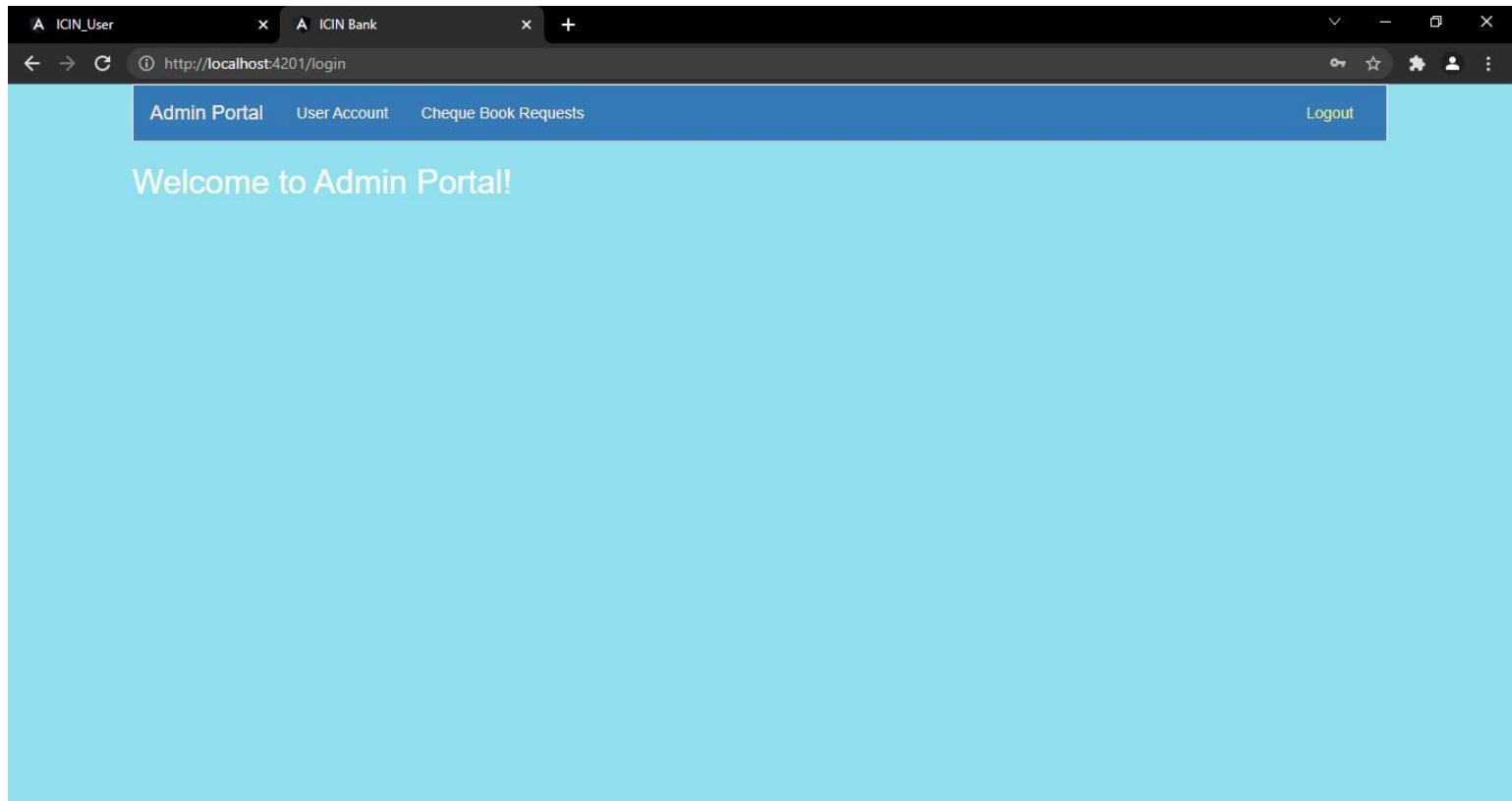
Saving Account

Account Number: 11223345  
Account Balance: 5000 Rs



## ✧ SCREENSHOTS OF ADMIN PORTAL





| First Name | Last Name | Email             | Phone      | Primary Account | Savings Account | Action  |
|------------|-----------|-------------------|------------|-----------------|-----------------|---------|
| Anushka    | Sharma    | anushka@gmail.com | 7894561233 | 22113345        | 11223345        | Disable |
|            |           |                   | 0          | 22113346        | 11223346        | Disable |
| Pranshu    | Sharma    | pranshu@gmail.com | 7894585212 | 22113347        | 11223347        | Disable |

A ICIN\_User    A ICIN Bank

http://localhost:4201/chequeBookRequest

Admin Portal   User Account   Cheque Book Requests   Logout

## Cheque Book Requests

| Request Id | User Name      | Contact Number | Account Number | Confirmed? | Action  |
|------------|----------------|----------------|----------------|------------|---------|
| 1          | Anushka Sharma | 7894561233     | 22113345       | Pending    | Confirm |
| 2          | Anushka Sharma | 7894561233     | 22113345       | Pending    | Confirm |

A ICIN\_User    A ICIN Bank

http://localhost:4201/chequeBookRequest

Admin Portal   User Account   Cheque Book Requests   Logout

## Cheque Book Requests

| Request Id | User Name      | Contact Number | Account Number | Confirmed? | Action  |
|------------|----------------|----------------|----------------|------------|---------|
| 1          | Anushka Sharma | 7894561233     | 22113345       | Confirmed  |         |
| 2          | Anushka Sharma | 7894561233     | 22113345       | Pending    | Confirm |

A screenshot of a web browser window titled "ICIN Bank". The URL is "http://localhost:4201/chequeBookRequest". The page displays a table of "Cheque Book Requests" with the following data:

| Request Id | User Name      | Contact Number | Account Number | Confirmed? | Action |
|------------|----------------|----------------|----------------|------------|--------|
| 1          | Anushka Sharma | 7894561233     | 22113345       | Confirmed  |        |
| 2          | Anushka Sharma | 7894561233     | 22113345       | Confirmed  |        |

A screenshot of a web browser window titled "ICIN Bank". The URL is "http://localhost:4201/chequeBookRequest". The page displays a table of "Cheque Book Requests" with the following data:

| Request Id | User Name      | Contact Number | Account Number | Confirmed? | Action |
|------------|----------------|----------------|----------------|------------|--------|
| 1          | Anushka Sharma | 7894561233     | 22113345       | Confirmed  |        |
| 2          | Anushka Sharma | 7894561233     | 22113345       | Confirmed  |        |

✧ **SCREENSHOTS OF DATABASE**

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

SQL File 5\* user transactions admin cheque\_book x

1 • SELECT \* FROM bnp.cheque\_book;

Result Grid | Filter Rows: [ ] | Edit: [ ] Export/Import: [ ] Wrap Cell Content: [ ]

|   | id   | accepted | user_id |
|---|------|----------|---------|
| ▶ | 1    | 1        | 1       |
|   | 2    | 1        | 1       |
| * | NULL | NULL     | NULL    |

cheque\_book 1 x Apply Revert

Result Grid Form Editor Field Types Query Stats

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

SQL File 5\* user transactions admin cheque\_book admin personal\_transaction x

1 • SELECT \* FROM bnp.personal\_transaction;

Result Grid | Filter Rows: [ ] | Edit: [ ] Export/Import: [ ] Wrap Cell Content: [ ]

|   | transaction_id | acc_no   | acc_type | date                | new_balance | prev_balance | transaction_type |
|---|----------------|----------|----------|---------------------|-------------|--------------|------------------|
| ▶ | 1              | 22113345 | Primary  | 2021-11-19 04:15:38 | 20000       | 0            | Deposit          |
|   | 2              | 22113345 | Primary  | 2021-11-19 04:16:57 | 19800       | 20000        | Withdraw         |
|   | 3              | 11223345 | Savings  | 2021-11-19 04:18:40 | 5000        | 0            | Deposit          |
|   | 4              | 22113347 | Primary  | 2021-11-19 04:37:18 | 332232      | 0            | Deposit          |
|   | 5              | 22113347 | Primary  | 2021-11-19 04:37:26 | 329000      | 332232       | Withdraw         |
|   | 6              | 11223347 | Savings  | 2021-11-19 04:37:47 | 32232       | 0            | Deposit          |
| * | NULL           | NULL     | NULL     | NULL                | NULL        | NULL         | NULL             |

personal\_transaction 1 x Apply Revert

Result Grid Form Editor Field Types Query Stats

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

SQL File 5\* user transactions admin cheque\_book admin personal\_transaction personal\_transaction primary\_account primary\_account 1

1 • `SELECT * FROM bnp.primary_account;`

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Result Grid | Form Editor | Field Types | Query Stats | Apply | Revert

|   | id   | account_balance | account_number |
|---|------|-----------------|----------------|
| ▶ | 1    | 19800           | 22113345       |
|   | 2    | 0               | 22113346       |
|   | 3    | 329000          | 22113347       |
| * | NULL | NULL            | NULL           |

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

SQL File 5\* savings\_account savings\_account 1

1 • `SELECT * FROM bnp.savings_account;`

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: | Result Grid | Form Editor | Field Types | Query Stats | Apply | Revert

|   | id   | account_balance | account_number |
|---|------|-----------------|----------------|
| ▶ | 1    | 5000            | 11223345       |
|   | 2    | 0               | 11223346       |
|   | 3    | 32232           | 11223347       |
| * | NULL | NULL            | NULL           |

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Schemas: bnp

Tables: admin, cheque\_book, personal\_transaction, primary\_account, savings\_account, transactions, user

SQL File 5\* transactions

```
1 • SELECT * FROM bnp.transactions;
```

Result Grid:

| transaction_id | ifsc    | description   | destination_acountnumber | source_acountnumber | transaction_amount |
|----------------|---------|---------------|--------------------------|---------------------|--------------------|
| 1              | ICN0001 | Fund Transfer | 22113345                 | 22113345            | 23                 |
| 2              | ICN0001 | Fund Transfer | 22113347                 | 22113347            | 3243               |
| *              | NULL    | NULL          | NULL                     | NULL                | NULL               |

Table: savings\_account

Columns:

- id** bigint AI PK
- account\_balance bigint
- account\_number int

Object Info Session transactions 1 × Apply Revert

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Schemas: bnp

Tables: admin, cheque\_book, personal\_transaction, primary\_account, savings\_account, transactions, user

SQL File 5\* transactions transactions user

```
1 • SELECT * FROM bnp.user;
```

Result Grid:

| id | address                  | fullname | mailid            | password                         | phonenumber | surname | primary_account_id | savings_account_id |
|----|--------------------------|----------|-------------------|----------------------------------|-------------|---------|--------------------|--------------------|
| 1  | 21 street f hoff Agra up | Anushka  | anushka@gmail.com | 791bd01b5c514eb4ae538b1802a28d84 | 7894561233  | Sharma  | 1                  | 1                  |
| 3  | 23 err grdg aligarh up   | Pranshu  | pranshu@gmail.com | f6fe98a33c7330a08711e1e2c6e048c  | 7894585212  | Sharma  | 3                  | 3                  |
| *  | NULL                     | NULL     | NULL              | NULL                             | NULL        | NULL    | NULL               | NULL               |

Table: savings\_account

Columns:

- id** bigint AI PK
- account\_balance bigint
- account\_number int

Object Info Session user 1 × Apply Revert